

## CLAIMS

What is claimed is:

1. In a data communication network supporting data compression, a method for optimizing compression efficiency, comprising:
  - 5 filtering protocol-specific header and control information of a protocol data unit (PDU) to determine compressibility of the contents of said protocol data unit; and  
based on the result of said filtering, selecting the state of data link compression for said protocol data unit to optimize compression efficiency.
- 10 2. The method as claimed in Claim 1, further including compressing the contents of the protocol data unit as a function of the state of data link compression.
3. The method as claimed in Claim 2, wherein compressing the contents of the protocol data unit includes applying an indication in or with the compressed protocol data unit to indicate whether the contents of the protocol data unit have  
15 been compressed.
4. The method as claimed in Claim 3, further including decompressing the compressed contents of the protocol data unit.
5. The method as claimed in Claim 4, wherein, based on the indication of whether the contents of the protocol data unit have been compressed, decompressing the  
20 compressed contents of the protocol data unit is performed in a manner previously negotiated.

6. The method as claimed in Claim 1, further including accessing a table having entries with specific media types deemed compression limited.
7. The method as claimed in Claim 1, wherein filtering includes associating individual protocol data units to a specific media type.
- 5 8. The method as claimed in Claim 7, wherein associating includes determining if a given protocol data unit is associated with a previously filtered protocol data unit and, if so, assigning the same state of data link compression for the given protocol data unit as for the previously filtered protocol data unit.
9. The method as claimed in Claim 8, wherein determining includes accessing a  
10 table including information of previously filtered protocol data units.
10. The method as claimed in Claim 1, wherein selecting the state of the data link compression includes disabling the data link compression if the compressibility of the contents of the protocol data unit is determined to be low.
11. The method as claimed in Claim 1, wherein selecting the state of the data link  
15 compression includes enabling the data link compression if the compressibility of the contents of the protocol data unit is determined to be high.
12. The method as claimed in Claim 1, further including initializing a table used by the data link compression with data patterns expected to be contained in the content of said protocol data unit.
- 20 13. In a data communication network supporting data compression, an apparatus for optimizing compression efficiency, comprising:

a filter of protocol-specific header and control information of a protocol data unit (PDU) to determine compressibility of the contents of said protocol data unit; and

5 a selector coupled to the output of the filter to select the state of data link compression for the protocol data unit to optimize compression efficiency.

14. The apparatus as claimed in Claim 13, further including a compressor responsive to the state of data link compression to compress the contents of the protocol data unit.

10 15. The apparatus as claimed in Claim 14, wherein the compressor includes an indication in or with the compressed protocol data unit to indicate whether the contents of the protocol data unit have been compressed.

16. The apparatus as claimed in Claim 15, further including a decompressor to decompress the compressed contents of the protocol data unit.

15 17. The apparatus as claimed in Claim 16, wherein, based on the indication of whether the contents of the protocol data unit have been compressed, the decompressor decompresses the contents of the protocol data unit in a manner previously negotiated with the compressor.

18. The apparatus according to Claim 13, wherein the selector includes a table having entries with specific media types deemed compression limited.

20 19. The apparatus as claimed in Claim 13, wherein the filter further associates individual protocol data units to a specific media type.

20. The apparatus as claimed in Claim 19, wherein the filter further includes a tracking unit to determine if a given protocol data unit is associated with a previously filtered protocol data unit and, if so, assigns the same state of data link compression for the given protocol data unit as for the previously filtered protocol data unit.
21. The apparatus as claimed in Claim 20, wherein the filter further includes a table having information of previously filtered protocol data units.
22. The apparatus as claimed in Claim 13, wherein the selector disables the data link compression if the compressibility of the contents of the protocol data unit is determined to be low.
23. The apparatus as claimed in Claim 13, wherein the selector enables the data link compression if the compressibility of the contents of the protocol data unit is determined to be high.
24. The apparatus as claimed in Claim 13, further including an initialization unit to initialize a table used by the data link compression with data patterns expected to be contained in the content of said protocol data unit.
25. In a data communication network supporting data compression, an apparatus for optimizing compression efficiency, comprising:
- means for filtering protocol-specific header and control information of a protocol data unit to determine compressibility of the contents of said protocol data units; and
- based on the results of said filtering, means for selecting the state of data link compression for said protocol data unit to optimize compression efficiency.

26. The apparatus as claimed in Claim 25, further including means for compressing the contents of the protocol data unit based on the state of data link compression.
27. The apparatus as claimed in Claim 26, further including means for decompressing the contents of the protocol data unit in a manner previously negotiated with the compressor.
28. A computer-readable medium having stored thereon sequences of instructions, the sequences of instructions including instructions, when executed by a processor, causes the processor to perform:
- filtering protocol-specific header and control information of a protocol data unit to determine compressibility of the contents of said protocol data unit; and
- based on the results of said filtering, selecting the state of data link compression for said protocol data unit to optimize compression efficiency.
29. In a data communication network supporting data compression, a method for optimizing compression efficiency, comprising:
- without changes to a subordinate protocol layer or changes to the higher protocol layers it carries, selectively controlling the state of a compression algorithm for compressing data transported by protocol data units across a connection in the data communication network to optimize the compression efficiency.
30. The method as claimed in Claim 29, wherein selectively controlling the state of the compression algorithm enables or disables the compression algorithm.

31. The method as claimed in Claim 29, wherein selectively controlling the state of the compression algorithm includes analyzing protocol-specific header and control information of the protocol data units of the higher protocol layers.

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